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BRIEFER ARTICLES.

NOTES ON THE BOTANY OF THE SOUTHEASTERN STATES. III.

CRATÆGUS MACRACANTHA Lodd., Loudon, Arb. Brit. 2 : 819. 1854. [ed. 2.]—In the valley of the Swannanoa river, near Biltmore, North Carolina, this species has been located recently. The finding of this thorn in the mountains of western North Carolina reveals the existence of not less than thirteen distinct varieties of the genus in this part of the state. While it has been considered that “the headquarters of the genus *Cratægus*” are in eastern Texas and western Louisiana,¹ the state of North Carolina has at least sixteen species within its borders.

Cratægus macracantha in North Carolina is usually a much-branched shrub, but occasionally attains arborescent proportions. It blossoms two or three weeks later than *C. coccinea* L. and a few days before the small-fruited form of *C. tomentosa* L., referred to in my second paper, and to which variety it is evidently more closely related than to the scarlet thorn. The flowers are produced in broad, leafy cymes, and are much smaller and more numerous than in *C. coccinea*; the leaves, which are borne on stouter and shorter petioles, are narrowed or cuneate at the base, prominently veined and of rather firmer substance, and the fruit at maturity is succulent and smaller than in the last named species. I have aimed to draw direct comparisons between the long-spined and scarlet thorns to point out the great dissimilarity between the two species, and because the disparity in the descriptions of the former in several text-books of botany is most bewildering. I take pleasure in acknowledging material assistance and many notes concerning this confused genus from my associate, Mr. F. E. Boynton, who has been my almost constant companion for several years in botanical pursuits.

CRATÆGUS ROTUNDIFOLIA (Ehrh.) Borck. in Rœm. Arch. 13 : 87. 1798.—The recognition of this species removes another stumbling

¹C. S. SARGENT, *Silva* 4 : 83. 1892.

block from our consideration of this puzzling, yet intensely interesting, genus. It seems that specimens of the above in herbaria have been generally placed with or referred to *C. coccinea* L., and while it has an aspect similar to that species it may be readily recognized. *C. rotundifolia* is abundantly represented in western North Carolina, growing along the banks of streams and even in the shallow, dry soil of old fields and upland woods. It frequently attains the size of a small tree, some 4-6^m high, and blossoms perceptibly later than *C. coccinea*, from which it may be distinguished by the very glandular character of the young shoots, thicker leaves, fewer stamens with usually lighter colored anthers, and the greenish or dull russet-red fruits.

CRATÆGUS ELLIPTICA Ait. Hort. Kew. 2: 168. 1789.—A few miles west of Biltmore, North Carolina, this excellent species is abundantly represented in abandoned fields and in open woodlands standing in company with pine and oak timber. In such situations *C. elliptica* often attains the proportions of a small tree, and the spreading, slightly pendulous or recurved, zig-zag branches and branchlets give a strikingly distinct aspect that serves to distinguish the species readily even in winter. In the time of flowering *C. elliptica* is from ten days to three weeks earlier than *C. flava* Ait., which is not uncommon in the region, and, besides, differs from that species by its smaller flowers, larger fruit, broader, thicker, and more glossy leaves, and the pubescence covering the young shoots and foliage.

POPULUS BALSAMIFERA CANDICANS (Ait.) A. Gray, Man. ed. 2. 419. 1856.—Much uncertainty yet surrounds the natural limits of distribution of this fine tree. Professor L. H. Bailey² points out its existence in Michigan; but I fail to find further information of a definite character.

The pistillate, possibly the only known form, is commonly cultivated and sparingly spontaneous at Biltmore, N. C., and other southern points.

POPULUS ALBA L. Sp. Pl. 1034. 1753.—Along many water-courses in the vicinity of Biltmore, N. C., and elsewhere in the south *P. alba* is spontaneous. I have observed only the staminate form, but rapid propagation is effected by broken branches carried by streams and by excessive sprouting from the stoloniferous roots.

² BOT. GAZ. 5: 77 and 91. 1880; and Bull. Cornell Univ. 68: 220. 1894.

COREOPSIS LONGIFOLIA Small, Bull. Torr. Bot. Club 22 : 47. 1895. —Material that closely matches specimens of this species gathered near Jacksonville, Florida, has been collected in Bladen county, North Carolina, June 9, 1896. The plants from North Carolina are plainly of perennial duration and continue to blossom from lateral shoots and possibly by seedlings until autumn.

Coreopsis helianthoides, n. sp.—An herb 5–12^{dm} high from a perennial base, growing in the moist, sandy pine barrens of west Florida: stout furrowed stems glabrous and terete, very leafy to near the middle, but almost naked at the divergently-branched summit: radical and lowest cauline leaves 5–12^{cm} long, 2–6^{cm} broad, ovate to ovate-lanceolate, acute, scarious-edged, contracted at the base into long margined petioles and sparingly and inconspicuously hirsute on both surfaces with many-jointed weak hairs; upper cauline few and remote, linear-lanceolate, much reduced in size and passing into mere bracts; petioles dilated and clasping at the insertion by a short sheath: internodes from base to near the middle very short, 1–5^{cm} long: heads 3–18 in number, many-flowered, 3–4^{cm} wide including the rays, 1–1.5^{cm} high: outer involucreal scales lanceolate, 5–9^{mm} long, 2–4^{mm} wide; the inner ovate, 8–12^{mm} long, 4–7^{mm} wide, many-nerved; floral scales linear, 5–7^{mm} long, acute: disk flowers dark purple; rays 8, orange-yellow, 3-cleft, the middle segment large and notched at the obtuse apex: achenes oblong, bordered by strong pectinate wings and surmounted by two short hispid awns.

C. helianthoides in general aspect is strikingly like *Helianthus Dowellianus* Curtis, and is related to *C. gladiata* Walt., from which species it differs in its smaller and more numerous heads, very leafy stem, remarkably short internodes, greater length of the outer involucreal bracts, larger and acute leaves and much stouter habit.

The type specimens were gathered at Aspalaga, Florida, October, 1897, by Dr. A. W. Chapman, who recognized the form as probably new to science.

GERANIUM MOLLE L. Sp. Pl. 682. 1753.—This interesting fugitive is thoroughly established in waste grounds at Biltmore, N. C., forming on the surface of the soil mats that are very conspicuous and in fertile situations sufficiently large to cover an area 5^{dm} square. The first seeds ripen in this locality in May, and under favorable conditions a second crop of plants is produced which mature seeds in autumn.

GERANIUM DISSECTUM L. Amœn. Acad. 4: 282. 1760.—This and the preceding species are not mentioned in text-books at my command as occurring in the southern states. *Geranium dissectum* blossoms at the same time or a little later than *G. Carolinianum* L., when the two species occupy the same area, and matures its first fruit as early as May. Not uncommonly a second crop of plants is produced that blossoms in autumn or late summer. The species is plentiful in waste places and cultivated grounds at Biltmore, North Carolina.

VIOLA TRIPARTITA Ell. Bot. S. C. & Ga. 1: 320. 1817.—Dr. Small³ has left little that may profitably be added to strengthen his most just attempt to restore to full standing this much confused and valid species. The affinities of *V. tripartita* are truly with *V. pubescens* Ait. and not with *V. hastata* Michx. Even in simple-leaved forms it is abundantly distinct from the last named species, and not only in the characters set forth in the article above referred to, but by the rootstocks, roots, and as it occurs in the south, by marked differences of environment. The short rootstock and long, coarse roots of *V. tripartita* are conspicuously different from the long horizontal and nearly white, fleshy rootstock and fine, short roots of *V. hastata*, and as found along the mountains and at Biltmore, N. C., *V. tripartita* grows in rather dry and fertile soil on the slopes of the hills or in shallow dales, while *V. hastata* selects a very moist or wet situation in woods and boggy or springy places on the sides of the mountains.

ACHYRANTHES ASPERA OBTUSIFOLIA (Lam.) Griseb. Fl. Brit. W. Ind. 62. 1864.—I have a specimen of this collected by Mr. A. H. Curtiss at Key West, Florida, and recently Dr. Chapman sent to the Herbarium specimens gathered in the streets of Apalachicola, Florida. It is evidently spontaneous at these stations and will doubtless be found at other southern ports.

PANICUM LONGIFOLIUM Torr. Fl. U. S. 149. 1824.—Material gathered near Wilmington, N. C., October 11, 1897, and recently verified by Mr. F. Lamson-Scribner, extends the range of this interesting grass many miles beyond the heretofore recognized limits. In this locality the species inhabits moist savannahs and margins of shallow ponds, growing in scattered tufts over a considerable area.

SYNEDRELLA NODIFLORA (L.) Gærtn. Fruct. 2: 456. *pl.* 171. 1791.—Dr. Chapman has sent to the Herbarium flowering specimens of

³ Bull. Torr. Bot. Club 24: 494. 1897.

this species gathered during the summer of 1897 at Apalachicola, Florida.

HYDROCOTYLE BONARIENSIS Lam. Encycl. 3: 153. 1788.—Another station in the United States for this fugitive may be added, the species being abundantly and thoroughly established in the vicinity of the ballast dumps at Wilmington, N. C., where it was collected in fruit and flower, July 2, 1897.

CAREX LAXICULMIS Schwein. Ann. Lyc. N. Y. 1: 70. 1824.—On May 13, 1898, in Henderson county, North Carolina, *C. laxiculmis* was found with nearly mature perigynia. I believe this is the first record of the species as belonging to the southern flora.—C. D. BEADLE, *Biltmore Herbarium*.

A NEW SPECIES OF APIOS FROM KENTUCKY.

THE plant here characterized was discovered some years ago in open woods and thickets near Bowling Green, Kentucky, by Miss Sadie F. Price. After noticing for several seasons its occurrence and peculiar characters, Miss Price, who recognized its genus and believed it a new species, sent it to Professor Charles F. Wheeler of Michigan Agricultural College for further examination. Professor Wheeler, after making dissections and comparisons, concurred in the view that it represented an undescribed *Apios*, but with undue modesty has declined to characterize it, and Miss Price has recently referred flowering and fruiting specimens, together with careful drawings, to the writer. The species for several reasons possesses more than ordinary interest. It is a second American member of a small but well-known genus. Like its congeners it has farinaceous tuberiform roots, but these attain much more considerable proportions and suggest a possible utility in cultivation. Furthermore, the corolla has a somewhat peculiar form, the standard being provided at the apex with a thick, spongy, knot-like prolongation. Any homologue of this appendage which may exist in the other known species is so rudimentary, if present at all, that its occurrence here seems to warrant the separation of this species as a subgenus. The genus may thus be divided into two subgenera as follows:

EUAPIOS. Standard suborbicular, rounded or retuse at the unthickened summit. Roots (as far as known) fibrous or moniliform-tuberous.